



Title: Modified Barley α -Glucosidase
 Inventor(s): Henson/Muslin/Clark
 Application No.:
 Docket Number: 960296.97486

2/6

BARLEY	MA-----T/CV-----LILCLC1,CLFAPRLCSSKECPLAAR---	(32)
S. BEET	Me-----rskipryicpllavvLplvLcmvvegatrSKndrqgeAigvg	(44)
SPINACH	MkkkipslalCi-----LLvflLqyvVaqistSendpeyvgy---	(38)
ARABID.	Me-----slhwfpnif---ivvvffelrssqvveEestvvgy---	(37)
BARLEY	-----TvlAVATMEG-----ALRAEAATCGRSSTG-----DVQRLAVY	(66)
S. BEET	yavkhakvdnstgkai-----tallqlirnspvyp-----DihfLsft	(85)
SPINACH	-----gykvksVxvds-----grRsstlalpqlvknssvypDiQlLeit	(78)
ARABID.	-----gyvvvavgvdsnqrqvlakldlikpasevyp-----DiksLnh	(76)
BARLEY	ASLETDSRLRVITDADHPRWEVPQDIIIPRPAFPGD-----VLHDAPPA	(109)
S. BEET	ASFEeDdtLRLRfTDAnneRWEiPnev1PFRPPpppppppppppppppp	(133)
SPINACH	ASLE8n9RLRVRITDAKHiiRWEiPdn1lhRhqPpp-----ppphelss	(121)
ARABID.	vSLET9sRLRiRITDssqçRWEiPetvIPRaghne-----prrfstee	(119)
BARLEY	S-----S-----APLQCRVLSFAGSDLVLT-V-H-ASPFRTVSRRSTGDT	(147)
S. BEET	p-----q-----nqptctVLShphSDLsf1f1fH-ttPFgFTiyRKSThDv	(172)
SPINACH	lyrtllespt-----tnrrkilLShpnSDLtfel-inttPFgFTiSRKSThDv	(168)
ARABID.	d-----ggnspennflaq6Psed1vft1h-n-ttFFgPsVSRRSSGdi	(159)
BARLEY	LFDIAPG-----L-----VFRDKYL-EVTSALPAGRASLYGLGEHTK	(183)
S. BEET	LFDatPipenpttfl-----iykdgqyLolsSeLPAqgANLYGLGEHTK	(215)
SPINACH	LFDatPdpttPntfL-----iFidgqylh1tSLSLFegeRahiyGCEHsK	(211)
ARABID.	LFDTsPd-----ssdsntyfifkDqfLqleSALPenRsnLYGiGEHTK	(202)
BARLEY	SSFRLRHNDSTLWNADICASVYDVNLYJSHPFYHDVRAp-----CTAH	(227)
S. BEET	ptFqlaENq;1tLWNADicfnsrD1NLYGSHFFYMDVrgspm-----CstH	(262)
SPINACH	ptFqlaENq;1tmaD1PspSnpDVNLYGSHPFYMDVrsppv-----CstH	(758)
ARABID.	rSFRLip3etmTLWNAtCgsepDVNLYGSHPFYMDVrg;ekoneeaGtH	(252)
BARLEY	GVLLLSNSGMVLYCGSYVITYKViCGVLFYFFAGSPNPLAVVDQYTQIA	(277)
S. BEET	CVIlliNSNGMDVeYtGcrrITYKViGGi1D1Y1FAGrtPemv1DQY1kL1g	(312)
SPINACH	GVLLLrNSGMMDVeYtGcrrITYKViGGi1D1YFFACFSPgqVvEcTr1g	(308)
ARABID.	CVLLlNSNGDvkyvChritynViGGv1D1YvFAGPvPemVmnQYTeL1g	(302)
BARLEY	RPAPMPYWSFCFHQCRYGYNVSLSLERYVARYAKARIPILEVWHDIDYMD	(327)
S. BEET	RPAPMPYWaFCFHQCry-GYrdrv1EtVvdkYaeAR/PLEVWHDIDYMD	(362)
SPINACH	RPAPMPYWaFCFQOCRYCYhdVyc1qcvvVAGYAKAK1PILEVWHDIDYMD	(356)
ARABID.	RPAPMPYWSFCFHQCRYGYNVSLEYvvd9yAKa9/FLEVWHDIDYMD	(352)
BARLEY	GFKDFTLDRVNFIAAE1LRFVDR1HRNAQKVYL1DPG1RVDP1FAT1YGT	(577)
S. BEET	AFKDFTLDPVhFpldkmqgFvt1LHRNgQxyvp1LDPG1---ntnks1GT	(409)
SPINACH	ayKDFTLDPVnFpldkmk1FVnnLHkNgQKVY1LDPG1---stnktYET	(405)
ARABID.	GyKDFTLDPVnFp2kmqgFvD1tLHkNgQKVY1LDPG1---gvDss1GT	(399)
BARLEY	FVRGMQODIFLKRNGTNFVGNVWPGDVYFPDFMHPAAEFWAREISLFR	(427)
S. BEET	FIRGMQsnnvFikRNGnpy1CsvWPGpVYvFDF1dPArrefWvdeIkrFrD	(459)
SPINACH	yIRGMkhDvFLKRNGkpy1G8vWPGpVYFFDF1kP8a1tFwcdEIkrfIn	(455)
ARABID.	ynRCMeadvFikRNGepylCovWFGkVYFPDF1nPAAarFwsnEIkrmFqe	(449)
BARLEY	T1FVDGLWIDMNEISNFY---FEPMN---ALDDPPYRINNDC1GPFINNKT	(473)
S. BEET	11P1DGiWIDMNEASNF1teap1P95---tLdnPPYkINNsGgk1Pi1NKT	(507)
SPINACH	11FVDGLWIDMNEISNF1---apP1pgst1PPYkINNsGv1Pi1NKT	(503)
ARABID.	11F1DGiWIDMNEISNF1---ap1sgeelCDPPYkINNsGdk1P1NKT	(497)
BARLEY	VRFLAVHYGGVTEYEE1nLFG1LEARATGRGVLRDTGRRPFV1LSRSTFVG	(523)
S. BEET	ipatAmHYGnVTEynahNlyGfLeeqATreelvRp8cLrgpF1LSRSTF4G	(557)
SPINACH	ipFtAmHYGc1pEvnvNLCGvLEARVTrsalik1TeKRPFV1LSRSTF5G	(553)
ARABID.	VgatciHfGnisEYdaHnLyGLLEAKATHqaVvd1TGkRPF1LSRSTFv9	(547)
BARLEY	SGRYTAYWTGDNAAWTGDLRYSINTMLSFLGFLGMPMIGAD:CGFNGNTTE	(573)
S. BEET	SGKYTAhWTGDNAAwddLqY1pTMLnFLGFLGMPMIGAD:CGFNGNTTE	(607)
SPINACH	SGKYTAhWTGDNAAthWodly1S1pem1LdfGLFG1PM-GADICGF1CNITE	(603)
ARABID.	SGKYTAhWTGDNAAwddLqY1p3g1LnFCLFG1PM-GADICGFshd1TTE	(597)
BARLEY	ELCGRWIC1GAFYFFSRDHSAY1FTVRELYWFsvAaSCKALGLRYC1LL	(623)
S. BEET	ELCGRWIC1GAFYFFSRDHSArdtchqELYLWvSVAASArvLG1LRYC1LL	(657)
SPINACH	ELCGRWIC1GAFYFFSRDHS1c1tqvqFLYtHESvAASArvLG1LRYC1LL	(653)
ARABID.	ELCGRWIC1GAFYFFSRDHS1gtaRqELYLWdsvAeS0RkV1LRLT1LL	(647)

FIG 2

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3/6

BARLEY	PYFYILMYEAHMTGAPIARPLFFSYPHDVAITYGVDRQFLLCRGVLVSPVLF (673)
S.BEET	PYYYTLMYdAnIrcGcPIARPLFFtPdDVATyGissQFLiGRGimVSPVLF (707)
SPINACH	PYFYILMYEAqInG1PIARPLFFSfPdDikTyGiesgQFLGkGVmVSPVLF (703)
ARABID.	Ph1yTLMYEAHVsCnPIARPLFFSfFqDtktreiD9CFLiGksimVSPVLF (697)
BARLEY	EPGPTTVDAYFPAGRwYRLYDYSЛАVATRIGKHVRLPAPADTVNVHLTG (723)
S.BEET	qPGssiVnAYsPrGnWvslsnyteasVsveaGtyvslsAPPdhiNVHiheG (757)
SPINACH	KPGvvsvtAYFPzGnWfdLfdYtrcVsasTGrVtLsAPPdhiNVHiqeqG (753)
ARABID.	kqGavaVDAYFPAGnWfdLfnYsfAVggdsgKHVRLetPADhVNVHvreG (747)
BARLEY	TILPLOQSALTTSRARRTAFHLLVALAEDGTIASGYLFLDGDSPEYGR-R (772)
S.BEET	nIvacQscAmTtqaArstTpFHLVvmsdhvast(GeLFLLdrGiemdiGg-p (906)
SPINACH	nJLamQgkAmTtqaArkTpFHLVvmsdcGae(GeLFLLDDGvevtmGvnR (903)
ARABID.	eiIvacQgqALTTrdArkTpqyqlLlvvaerleni(GeLFLLDDGcnIrmGa-g (796)
BARLEY	S---D-WSMVRFNYKIPNNGKA-KVKSEVVHNSYAQSRSLVlSKVVLMGH (916)
S.BEET	g---gkWlVRFfsssgaN-nltisSEVnrsYAmSqrwVmdKit1lG1 (851)
SPINACH	g---k-WfVkf--iadaeaKqtcitSdVvegefAvSqkwVlckVtilG1 (847)
ARABID.	9grrD-Wt1Vkf--rcyvtgkexvlrSEVVnpeYakekmkwslgKVtfvGf (843)
BARLEY	RSFAPAPKKLTVMVNSAEVEASSSAGTRYQNAGGCLGGVAH-ICGLSLVVGE (867)
S.BEET	krrvkiKeyTVqkdagaikvkglgrrtsshngGffVsv-IedLrqlVGq (900)
SPINACH	RKgtkingyIVrtgavtrkgdkSkIkstpdrukGefivAe-JsGLnLllGr (896)
ARABID.	enenvvKtyleVrtserlrsprislikcvsdndprflsvevskLSLIVGk (993)
BARLEY	EFELKV----AMSY (877)
S.BEET	aFkLelefegAtrv (914)
SPINACH	EFkL-----vlh (903)
ARABID.	xFEmrl----rlt- (902)

FIG 2